AMENDMENTS TO THE CLAIMS

Please amend claims 15-21 as follows:

Claims 1-14 (Cancelled).

15. (Currently Amended) An automatic frequency controlling method for controlling an oscillation frequency in a code division multiple access system using a spectrum spreading technique which has a frame format in which pilot symbols and data symbols are time multiplexed for transmission and in which a variable transmission symbol rate is realized by making a spreading rate variable under a constant chip rate, said method comprising:

in-phase summing in at least two different in-phase summation rates the pilot symbols each having a complex vector expression over a predetermined length of a symbol interval after converting the pilot symbols into ~~the~~ respective complex vector ~~expression~~ expressions by canceling [[a]] data modulated ~~component~~ components of the pilot symbols; ~~and~~

estimating a frequency offset based on a result of conjugate complex multiplication of a plurality of said complex vector expressions which are subjected to the in-phase summing; and

controlling the oscillation frequency of a crystal oscillator in accordance with an estimation of the frequency offset calculated through the estimating of the frequency offset.

16. (Currently Amended) An automatic frequency controlling method according to claim 15, said method further comprising:

~~controlling an oscillation frequency of a crystal oscillator in accordance with an estimation of the frequency offset calculated through the estimating of the frequency offset;~~

converting a received frequency signal into an intermediate frequency signal in accordance with the oscillation frequency; and

orthogonally demodulating the intermediate frequency signal based on the oscillation frequency.

17. (Currently Amended) An automatic frequency controlling method according to claim 15, said method further comprising:

obtaining a baseband signal having an in-phase component and an orthogonal component through the orthogonal demodulation and converting into digital signals by A/D converters, respectively;

inversely spreading the digital signals by inversely spreading units to separate the pilot symbols from the data symbols; and

converting the pilot symbols into <u>the respective</u> complex vector expressions by canceling the data modulated components of the pilot symbols.

18. (Currently Amended) An automatic frequency controlling system <u>for controlling an oscillation frequency</u> in a code division multiple access system using a spectrum spreading technique which has a frame format in which pilot symbols and data symbols are time multiplexed for transmission and in which a variable transmission symbol rate is realized by making a spreading rate variable under a constant chip rate, comprising:

an orthogonal demodulator converting a receive signal into a baseband signal having an in-phase component and an orthogonal component;

inversely spreading units inversely spreading the in-phase component and the orthogonal component of the baseband signal;

pilot symbol interval detectors detecting the pilot symbols from the data symbols;

pilot inverse modulating units converting the pilot symbols into complex vector expressions by canceling data modulated components of the pilot symbols;

an in-phase summing section in-phase summing in at least two different ~~manners~~ in-phase summation rates, the complex vector expressions of the pilot symbols over a predetermined length of a symbol section; ~~and~~

an estimating section estimating ~~the~~ a frequency offset from conjugate complex multiplication of a plurality of said complex vector expressions which are subjected to the in-phase summation; and

a controlling section controlling the oscillation frequency of a crystal oscillator in accordance with an estimation of the frequency offset obtained through the estimation of the frequency offset.

19. (Currently Amended) An automatic frequency controlling system according to claim 18, wherein:

(a) the in-phase summing section in-phase summing in the at least two different ~~manners~~ in-phase summation rates comprises:

a buffer memory storing the pilot symbols over at least two symbol intervals of the complex vector ~~signal~~ expressions received from the inverse modulating units; and

an in-phase adder in-phase summing the outputs of the buffer memory, ~~and~~

(b) the system further comprises a complex adder summing outputs of the in-phase adder which correspond to the in-phase components and the orthogonal components of the base band signal, and

(c) the estimating section estimating the frequency offset comprises:

~~a complex adder summing outputs of the in-phase adder which correspond to the in-phase components and the orthogonal components of the base band signal;~~

a conjugate complex multiplier carrying out conjugate complex multiplication of a sum stored in a second buffer memory to outputs of the second buffer memory; and

an angle and frequency offset converter averaging and converting outputs of the conjugate complex multiplier into angular components, and converting the angular components into frequency components to estimate the frequency offset.

20. (Currently Amended) An automatic frequency controlling system according to claim 18, further comprising:

~~a controlling section controlling the oscillation frequency of a crystal oscillator in accordance with an estimation of the frequency offset obtained through the estimation of the frequency offset; and~~

a converting section converting the received signal into an intermediate frequency signal in accordance with the oscillation frequency,

wherein the intermediate frequency signal is orthogonally demodulated using the oscillation frequency.

21. (Currently Amended) A CDMA receiver in a code division multiple access system using a spectrum spreading technique which has a frame format in which pilot symbols and data symbols are time multiplexed for transmission an in which a variable transmission symbol rate is realized by making a spreading rate variable under a constant chip rate, comprising:

a mixer for converting a received frequency signal into an intermediate frequency signal;

a first local frequency generator supplying the mixer with a local oscillation signal;

an orthogonal demodulator for orthogonally demodulating the intermediate frequency signal in accordance with a second local frequency of a second local frequency generator;

inversely spreading units converting in-phase components and orthogonal components of the baseband signal received from the orthogonal demodulator into digital signals;

pilot symbol demodulators separating the inversely spread signal outputted from the inversely spreading units into the pilot symbols and the data symbols, and converting the pilot symbols into complex vector expressions by canceling the data modulated component of the pilot symbols;

inversely modulated pilot symbol in-phase adders for in-phase summing in at least two different ~~manners~~ in-phase summation rates, the complex vector expressions of the pilot symbols over a predetermined length of a symbol section;

a frequency offset estimator estimating a frequency offset based on conjugate complex multiplication of a plurality of said complex vector expressions which are subject to the in-phase summing; and

a reference local frequency generator generating a reference local frequency based on the frequency offset and delivering the reference local frequency to the first and second local frequency generators.